here collected it is clear that a direct effect is produced. If we are to regard horns as secondary sexual appendages which have been subsequently handed on to the female by heredity, we should expect to meet with examples of animals now homed in both sexes, of which the earlier representatives had the horns confined to one sex. This is most interestingly shown by the extinct and Miocene Giraffe, *tSamotfaeriuin,* of which the male alone had a pair of short horns, while the skull of the female was entirely hornless; the modern *G-iraffct,* as is well known, has horns in both sexes.

It is interesting to note that the existing Perissodactyles and Axfciodactyles are to be distinguished by their unpaired or paired horns. But while there are no Artiodactyles with unpaired horns (save occasional sports) the Perissodactyles have more than once tried, so to speak, paired horns, which ultimately proved fatal to them. The Hhinoceros *Diceratheriuvn* apparently inherited and improved upon the small paired horns of *-Aceratherium,* but it has left no descendant. The paired horned Titanotheria offer another instance of the same apparent incompatibility between the Perisso-dactyle structure and the persistence of paired horns.

SUB-OBBER 1. OONDTTLAItTHBA.

This group is characterised by the following assemblage of characters. Extinct, often plantigrade Ungulates, with five-toed limbs. Bones of carpus and tarsus not always interlocking, but sometimes lying above each other in corresponding positions. The burner us has an entepicondylar foramen. Dental formula quite complete ; the molars brachyodont and bunodont. The pretnolars are simpler than the molars. The canines are small. As with other early types, the zygapophyses are flat and do not interlock. The astragalus is like that of the Creodonta. This group was American and European, in range, the remains of its rather numerous genera beis&g of Eocene time. The best-known genus is *J?henacodus,* of which some account will be given before discussing the, in many cases, more fragmentary remains of other allied forms.

The genus *JPhenacodus* was first described so long ago as 1872, from a few scattered teeth. Since then several nearly complete 'skeletons have been obtained, and we are in full possession of